Unit 2 Review

In addition to knowing vocab definitions, be sure you can apply them to understand the following:

Ch 4

- 3 parameters of microscopy
  - How do they influence the advantages/disadvantages/usefulness of each type of microscope?
- Purpose of cell fractionation
- Similarities vs differences of various types of cells
  - Prokaryote vs eukaryote
  - Plant vs animal
- Reasoning for size limitations of prokaryotes vs eukaryotes
- Function of each organelle
  - What types of cells would have more of certain organelles and why?
  - What problems can result if a particular organelle is not functioning correctly?
  - How does their structure fit their function?
  - In what order might a synthesized or transported molecule encounter various organelles based on their function?
- Function of cytoskeleton as a whole as well as each of its individual components (microtubules vs microfilaments vs intermediate filaments)
  - What proteins are associated with each component? (dynein, actin, myosin, etc.)
  - What functions will the cell lose if there is an error in the formation of those proteins?
- Extracellular components
  - Examples and how they coordinate cell activities

Ch 5

- Cell membrane structure
  - How does it maintain fluidity?
  - How do the structure of different proteins in the membrane affect their function?
- Permeability of lipid bilayer
  - What kinds of structures can/cannot cross it easily and why?
- Passive vs active transport
  - What are the different types and examples of each and how do they work? (diffusion, osmosis, facilitated diffusion, pumps, cotransport, bulk transport, etc.)
    - Is energy invested?
    - How does concentration play a role? (high to low vs low to high)
    - In what direction are molecules moving? (in or out of cell)
- Water balance
  - How do cells balance water concentration?
  - What types of environments cause cells to gain or lose water?
  - How does this gain or loss of water affect plant vs animal cells?
- Membrane potential
  - How do cells maintain membrane potential and why is it important?
- Cell signaling
  - Examples and functions of local vs long distance signaling
  - Processes involved in the three stages of cell signaling
- Protein phosphorylation vs dephosphorylation
  - Are phosphate groups being added or removed?
  - Does this activate or inactivate the protein?